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ABSTRACT

A study compared the typing speeds attained by students who learned to type on typewriters with the speeds attained by students who learned on computers in order to determine whether the medium of instruction has any effect on achievement. Data were gathered on the speeds of 585 students from west central Indiana high school business teachers. Of the students timed, 242 learned on typewriters and 343 learned on computers. The study showed that mean keyboarding speeds were higher for students who learned on computers as compared to those who learned on typewriters. Mean keyboarding speeds achieved by students using computers were 30 words per minute, whereas speeds for those using typewriters were 28.8 words per minute. (KC)

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COMPUTERS VS TYPEWRITERS WHICH PRODUCES THE BETTER TYPIST?

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Abstract

In this study I compare the typing speeds attained by students who learned to keyboard on typewriters with the speeds attained by students who learned to keyboard on computers to see if the media of instruction has any effect on achievement. I contacted west central Indiana high school business teachers to obtain data they had concerning their student's speeds along with any other information they believed was pertinent. I received scores concerning 242 students who learned on typewriters and 343 who learned on computers. Mean keyboarding speeds were higher for students on computers as compared to typewriters.

Background

Technology is increasing every year but with limited budgets it is difficult for many school corporations to stay current with what is available. The typewriter used to be the standard media for teaching keyboarding skills to students. In recent years schools have begun offering keyboarding instruction on computers. Are schools just trying to appear modern by offering computerized instruction or are there valid reasons for the expenditures necessary to stay current with changes in technology?

Not only are computers are becoming more common every year, but individuals, as well, are becoming more computer literate. Otto Friedrich (1982) stated in a study that a mere 16 years ago computers were starting to become more important in the workplace and already about 10% of typewriters were being replaced by computers. Their popularity is emphasized even more in an article available on the internet by Elizabeth Hanson-Smith (1997) which states that almost 30% of U.S. households own a PC, and more than 60% of U.S. students use computers in schools.

Lets first take a closer look at the two options we have. The typewriter has been around since the late 1800s. It has had numerous changes and improvements since that time until it has become the present electronic typewriter available today. Most have error correction features and some come equipped with a screen monitor and floppy disk storage capacity. The top of the line electronic typewriter is similar to a basic computer word processor in many ways. It has electronic circuits, and a microprocessor. They can even be used as a computer printer.

But, they cannot run programs or be used to play games, which is seen as an advantage by some teachers. (Compton's Interactive Encyclopedia, 1996).

Compton's Encyclopedia (1996) also points out that in 1953 there were only about 100 computers in use in the entire world. Today they are everywhere. Compton's goes on say that more than 110 million computers are in use today in homes, businesses, government offices, and universities for almost any purpose you can imagine.

The Arguments for Computers

The question remains, should we abandon typewriters in favor of computers? The Indiana Department of Education (1992) thinks so and states, in their curriculum guides for keyboarding, that computers be used for keyboarding instruction wherever possible. This may be a major cost obstacle for many corporations, not only on the machines, but also in keeping up-to-date with the latest word processing programs.

Elizabeth Hanson-Smith (1997) agrees with the state of Indiana in that teachers need to be using the available technology. She believes that computers can adapt to a variety of student learning styles, especially with their ability to provide sound, color, graphics, and animation -- in addition to or layered onto text.

Friedrich (1993) adds to these arguments by showing that the computer is also becoming the norm in the workplace. He points out that computers are taking over routine tasks such as managing payrolls and checking inventories as well as ordinary word processing tasks. He sites a study by Booz, Allen, and

Hamilton that says that, "all told, office professionals could save about 15% of their time if they used the technology now available."

Most of the teachers that I talked to also preferred the computer over the typewriter. They cited the fact that more and more students have computers at home, so it only makes sense to teach them on the equipment that they will be using or are already using. Not all teachers kept student speeds over the years, but they did feel that speed and, more importantly, accuracy improved on the computer.

The Arguments for Typewriters

Have typewriters disappeared? No. In fact, Patricia Fernberg (1989) points out that sales of electronic typewriters averaged about a billion dollars a year in the late 80's and that their growth rate would remain steady over the next five years. Typewriters are still around and being used.

While computer might be becoming more dominant in the workplace the typewriter is still being used there as well. Mark Audino (1986) contradicts Fernberg's arguments by referring to a survey that found that 85 percent of secretaries who use a computer also use a typewriter. Some documents must be typed and it is important to know the differences between typewriters and computers. Patricia Paez (1985) supports Audino's arguments for the typewriter and points out that the keyboard on both is very similar. She believes that the typewriter's keyboard

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requires fewer keystrokes and has a simpler, less code-intensive user interface. She also believes that the transition from one typewriter to a higher function typewriter is much easier than the transition to a personal computer that has the same functions.

Some teachers also favor the typewriter over the computer. Technique on the typewriter is usually better. Teachers complain that students get lazy on computers. At home they work with the keyboard in their laps and can not understand why their grade suffers for that and resting their wrists on the table. Students watch the screen and loose their place easily. All of which takes off points by every keyboarding teacher I know.

Also, the push for technology has moved to the lower grades. Before keyboarding was only taught in the high schools. Now days, many corporations have computer literacy classes or even keyboarding classes in middle schools and even some elementaries. For the most part, licensed business teachers who have been trained to teach keyboarding do not teach these classes. When they reach high school they have many bad habits that keyboarding teachers have to try to correct in addition to teaching the lessons.

Students these days are very computer oriented. They know and understand the equipment, sometimes better than their teachers. While the students may be able to produce more documents and make them more attractive than in the past, I don't believe that actually keyboarding speeds will be much higher on computers as compared to typewriters. Reasons for more production would include ease of correction and ease of making

format changes. These would not be present on timed writings so these variables would not affect speeds. If students are actually able to keyboard faster on computers, then mean keyboarding speeds on computers would be higher than mean keyboarding speeds on typewriters.

Statement of the Problem

Keyboarding teachers are always looking for methods to improve students keyboarding speeds. What this study is examining is whether learning keyboarding on a personal computer produces faster keyboarding speeds by students as compared to keyboarding speeds attained by students who were taught keyboarding on an electronic typewriter.

In this study I will attempt to find this out as well as seeing if business teachers have any preference on which method they prefer to use for instruction. The hypothesis I will be using is: There is no difference in the keyboarding speeds attained when using a computer as compared to the keyboarding speeds attained when using a typewriter.

Methodology

The data I used in this study came from business teachers in west central Indiana. I talked to many teachers during a state conference for business and marketing education instructors. Others responded to a letter I sent out requesting data on keyboarding speeds. Unfortunately, many teachers do not keep timed-writing results from year to year. From my own data and from some other teachers who did have their results, I was able to obtain data on 242 students who had been taught on typewriters

and 343 students who had been taught on computers. The high schools represented ranged in size from under 250 students to over 1800 students in grades 9 through 12. The teachers who responded to my request for data had experiences ranging from 3 years to 32 years of teaching high school business.

I compiled the results and split them into their groups, keyboarding or computers. Then I entered them into a computer using SPSS for MS WINDOWS Release 6.1. I ran a statistical analysis of the data as a t-test for independent samples to see if there was a significant difference in the mean keyboarding speeds for the different instructional media.

Results

The null hypothesis was rejected. Table I shows the difference in the means of students using typewriters and students using computers. Table II shows the level of significance in the difference by using t-test analysis. The difference is significant to less than .05. A graph displaying the means of student's keyboarding speeds using typewriters and computers is illustrated in Figure I.

TABLE I

Results of the Study

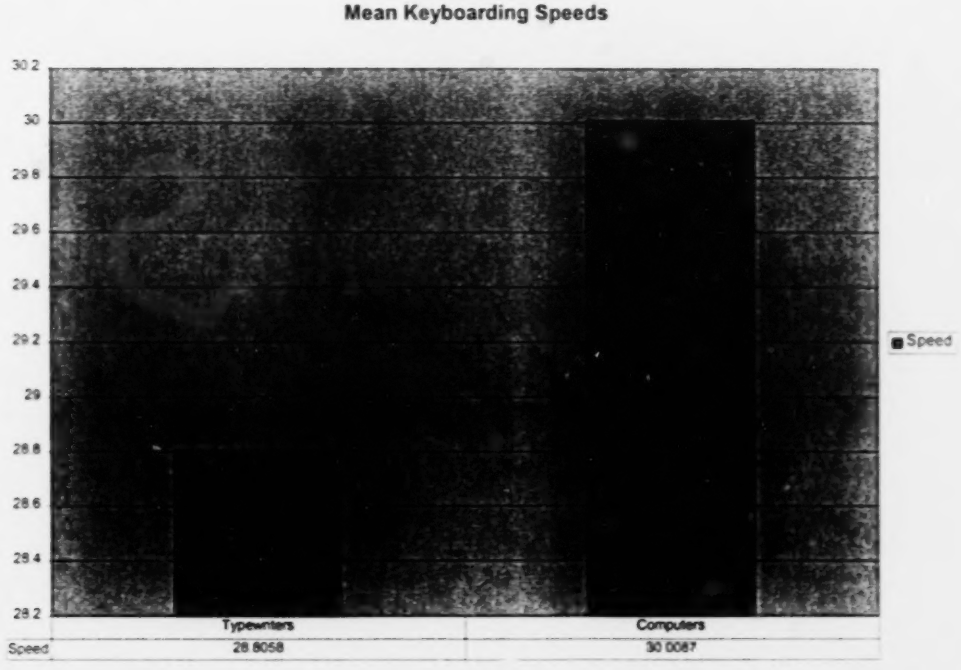
	Mean	SD
Typewriter Speeds	28.8058	6.612
Computer Speeds	30.0087	7.132

TABLE II

Statistical Analysis of the Hypothesis

	t-value	df	2-tailed Significance
Keyboarding Speeds	-2.07	583	.039

Figure I



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Discussions, Conclusions, and Recommendations

For all practical purposes, the media teachers are going to use will be decided by what is available. Teachers try to provide students with current information and methods for doing things. These days that means using computer technology. States are pushing schools to put out better educated students and are looking at increasing graduation requirements. Computer education can be the solution to both of these problems if implemented correctly. Students will be able to get more work done and will be learning skills they can use on the job. If computer classes become required for graduation, students will become conversant with current technology.

Student achievement will always vary. You are going to get some students who achieve high and others who won't. There are still some instances where typewriters need to be used, but these are diminishing. Computers can aid in student achievement as this study shows. Keyboarding speeds is just one area, there are limitless others where computer use can be implemented. Printers can handle most kinds of forms and envelopes and copiers can cheaply and easily make multiple copies. It only makes sense to

use the technology to keep students up to date and make them more employable or ready for college. This is the goal of most schools and computers are the means for reaching that goal.

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